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| NAME OF DISCOVERER. | Period of Observations. | No. of Comets discovered. |
|-------------------------------|-------------------------|---------------------------|
| CHARLES MESSIER | 1760-1798 | 13 |
| P. F. A. MECHAIN | 1781-1799 | 8 |
| CAROLINA HERSCHEL | 1786-1795 | 6 |
| JEAN LOUIS PONS | 1802-1827 | 30 |
| PADRE DI VICO | 1844-1846 | 5 |
| T. J. C. A. BRORSEN | 1846-1851 | 5 |
| WILHELM KLINKERFUES | 1853-1863 | 6 |
| CARL BRUHNS | 1853-1864 | 7 |
| GIOVAN B. DONATI | 1855-1864 | 5 |
| F. AUG. T. WINNECKE | 1858-1881 | 13 |
| WILHELM E. TEMPEL | 1859-1884 | 18 |
| LEWIS SWIFT | 1862-1890 | 8 |
| J. COGGIA | 1867-1877 | 7 |
| ALPHONSE BORELLY | 1871-1890 | 7 |
| E. E. BARNARD | 1881-1890 | 13 |
| W. R. BROOKS | 1883-1890 | 12 |

CONTRIBUTIONS OF RAPHAEL AND OF ALBRECHT DÜRER TO ASTRONOMY.

It may not be known to all that RAPHAEL's Madonna di Foligno has a special interest to astronomers. It is, I believe, the only painting of any note which commemorates an astronomical event. This picture was painted by RAPHAEL in 1511, and placed in the Church of Ara-Cœli, as a votive offering from SIGISMUND CONTI, secretary to Pope JULIUS II, for his miraculous escape from death by an aerolite. The picture was removed to the Convent of Foligno in 1565 by a niece of CONTI's, and was carried off by the French in 1792. It was returned in 1815 and is now in the Vatican. Such is a brief sketch of the wanderings of this exquisite painting. Its purely astronomical interest consists in the portrayal of the fall of the aerolite itself, which occupies the centre of the picture. The

drawing must have been made by RAPHAEL from the personal account of CONTI (who was living in 1512), and, therefore, it has even a certain scientific value.

It does not seem to be superfluous to call attention to this item of history, which lends a slight additional interest to one of the world's great pictures. I have presented a good photograph of this painting to the Astronomical Society's library.

The contribution of ALBRECHT DÜRER to astronomy is even more pronounced and permanent, though it is unknown, I believe, to all of his biographers.

HIPPARCHUS (B. C. 127) and PTOLEMY (A. D. 136) fixed the positions of stars by celestial latitudes and longitudes, and named the stars so fixed, by describing their situation in some constellation figure. The celestial globes of that day have all disappeared, and we have only a few Arabian copies of them, not more ancient than the XIIIth century, so that we may say that the original constellation figures are entirely lost. The situations of the principal stars in each one of the forty-eight classic constellations are verbally described by PTOLEMY. In LALANDE'S *Bibliographie Astronomique* we find that in A. D. 1515 ALBRECHT DÜRER published two star maps, one of each hemisphere, engraved on wood; in which the stars of PTOLEMY were laid down by HEINFOGEL, a mathematician of Nuremberg. The stars themselves were connected by constellation-figures, drawn by DÜRER. These constellation-figures of DÜRER, with but few changes, have been copied by BAYER in his *Uranometria* (A. D. 1603); by FLAMSTEED in *Atlas Cælestis* (1729); by ARGELANDER in *Uranometria Nova* (1843), and by HEIS in *Atlas Cælestis Novus* (1872), and have thus become classic. It is a matter of congratulation that designs which are destined to be so permanent should have come down to us from the hands of so consummate a master.

E. S. H.

PHOTOGRAPHS OF THE LICK OBSERVATORY.

Knowledge for November, 1889, contains some excellent reproductions of photographs taken at and near the Lick Observatory by Mr. BURNHAM. The frontispiece is a capital view of the eye-end of the great telescope. The work was done by the Direct Photo-Engraving Company of London.

CIRCULATION OF THE *PUBLICATIONS* OF THE LICK OBSERVATORY.

In November, 1888, a copy of volume I of the *Publications* of the Lick Observatory was sent to a library in Boston. A letter lately received states that during the past year it has been taken out by eighty-seven persons, and that nineteen others are registered to receive it in their turn! If the whole edition is read as faithfully, the work will have been useful. E. S. H.

ACCESSIONS TO THE LIBRARY.

Dr. GEORGE F. BECKER, of the U. S. Geological Survey, has done the Observatory a great service by depositing in its library the following volumes from his private collections:

CRELLE: *Journal für die reine und angewandte Mathematik*; Vols. 1 (1826) to 15, inclusive; parts of 16 and 18; Vols. 20 to 68, inclusive. [The Observatory set begins with Vol. 100.]

GILBERT: *Annalen der Physik*; complete, 1799–1824; Vols. 1 to 76, inclusive, with index.

THOMSON & TAIT: *Handbuch der Theoretischen Physik*; Vol. 1; two parts.

LAGRANGE: *Œuvres de Lagrange*; [Government edition of 1867]; Vols. I, II.

LAPLACE: *Œuvres de Laplace*; [Government edition of 1843]; Vols. I, II, III, IV, V, VI, VII (bound in 4.)

These books are to remain on our shelves as a permanent loan, until recalled by their owner. The list is given here in order that members of the Society may know of the existence of these works in one of the libraries of the Pacific Coast. Some of them are also to be found in the University Library, Berkeley. E. S. H.

PROBABLE RETURN OF LEXELL'S COMET.

The news of a remarkable and extremely important discovery in cometary astronomy, made by Mr. S. C. CHANDLER—so well known as a mathematician and astronomer—has just been received. Mr. CHANDLER has just completed a preliminary examination into certain peculiarities of the orbit of the comet discovered in July last by Mr. BROOKS, and which is still under observation.

This comet has been found to revolve in an elliptical orbit about the sun in seven years. It has attracted particular attention through